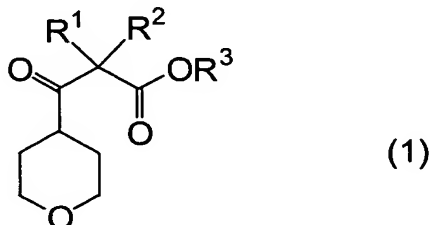


[Document name] Claims

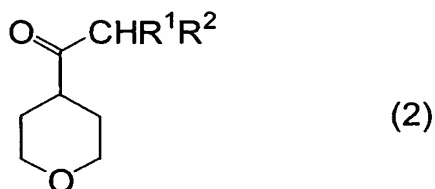
[Claim 1]

A process for preparing an alkyl 3-(4-tetrahydro-  
pyranyl)-3-oxopropanoate compound represented by the  
5 formula (1):



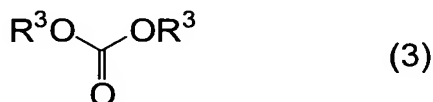
wherein R<sup>1</sup> and R<sup>2</sup> may be the same or different from  
each other, and represent a group which does not  
participate in the reaction, and R<sup>1</sup> and R<sup>2</sup> may be  
10 bonded to form a ring, and the ring may contain a  
hetero atom(s), and R<sup>3</sup> represents a hydrocarbon  
group,

which comprises reacting 4-acetyltetrahydropyran represented  
by the formula (2):



15 wherein R<sup>1</sup> and R<sup>2</sup> have the same meanings as defined  
above,

and a carbonic acid diester represented by the formula (3):



20 wherein R<sup>3</sup> has the same meanings as defined above,  
and two R<sup>3</sup>s may be bonded to each other to form a  
ring,

in the presence of a base.

[Claim 2]

25 The process according to Claim 1, wherein R<sup>1</sup> and R<sup>2</sup>  
may be the same or different from each other, and represent

at least one selected from the group consisting of a hydrogen atom; a methyl group, an ethyl group, a propyl group, a butyl group, a pentyl group, a hexyl group, a heptyl group, an octyl group, a nonyl group, a decyl group, a undecyl group, a dodecyl group, a tridecyl group, a tetradecyl group, a pentadecyl group; a benzyl group, a phenethyl group; a phenyl group, a tolyl group; a methoxy group, an ethoxy group, a propoxy group; a benzyloxy group, a phenethyloxy group; a phenoxy group; a formyl group, an acetyl group, a propionyl group, a benzoyl group; a formyloxy group, an acetoxyl group, a benzoyloxy group; fluorine atom, a chlorine atom, a bromine atom and an iodine atom, and  $R^3$  is the same or different from each other, and each represent at least one selected from the group consisting of a methyl group, an ethyl group, a propyl group, a butyl group, a pentyl group, a hexyl group, a heptyl group, an octyl group, a nonyl group, a decyl group, a benzyl group, a phenethyl group, a phenyl group, a naphthyl group and an anthryl group.

[Claim 3]

The process according to Claim 1, wherein an amount of the carbonic acid diester to be used is 1.0 to 50 mol based on 1 mol of the 4-acyltetrahydropyran.

[Claim 4]

The process according to Claim 1, wherein the base is at least one selected from the group consisting of sodium hydride; sodium methoxide, sodium ethoxide, sodium n-propoxide, sodium i-propoxide, sodium n-butoxide, sodium t-butoxide, potassium methoxide, potassium ethoxide, potassium n-propoxide, potassium i-propoxide, potassium n-butoxide, potassium t-butoxide; sodium carbonate, potassium carbonate; sodium hydrogen carbonate, potassium hydrogen carbonate; sodium hydroxide, and potassium hydroxide.

[Claim 5]

The process according to Claim 1, wherein an amount of the base to be used is 0.1 to 10 mol based on 1 mol of

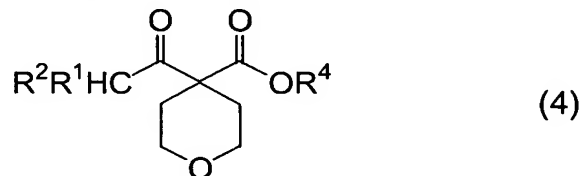
the 4-acyltetrahydropyran.

[Claim 6]

The process according to Claim 1, wherein the reaction is carried out by mixing 4-acyltetrahydropyran, the carbonic acid diester and the base with stirring at 20 to 150°C.

[Claim 7]

The process for preparing the alkyl 3-(4-tetrahydropyranyl)-3-oxopropanoate compound according to Claim 1, wherein the 4-acyltetrahydropyran represented by the formula (2) is obtained by subjecting 4-acyl-4-alkoxy-carbonyltetrahydropyran represented by the formula (4):



wherein R<sup>1</sup> and R<sup>2</sup> have the same meanings as defined above, R<sup>4</sup> represents an alkyl group, to decarboxylation in the presence of an acid.

[Claim 8]

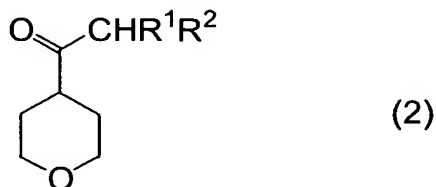
The process according to Claim 7, wherein the acid is hydrochloric acid or sulfuric acid.

[Claim 9]

The process according to Claim 7, wherein the decarboxylation is carried out at a temperature of 90 to 140°C.

[Claim 10]

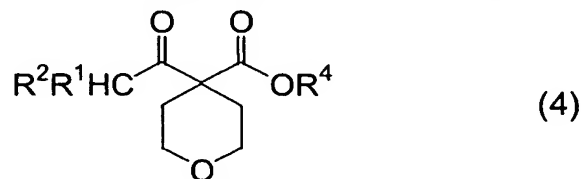
A process for preparing 4-acyltetrahydropyran represented by the formula (2):



wherein R<sup>1</sup> and R<sup>2</sup> may be the same or different from each other, and represent a group which does not

participate in the reaction, and  $R^1$  and  $R^2$  may be bonded to form a ring, and the ring may contain a hetero atom(s),

which comprises subjecting 4-acyl-4-alkoxycarbonyltetra-  
5 hydropyran represented by the formula (4):



wherein  $R^1$  and  $R^2$  have the same meanings as defined above, and  $R^4$  represents an alkyl group, to decarboxylation in the presence of an acid.

10 [Claim 11]

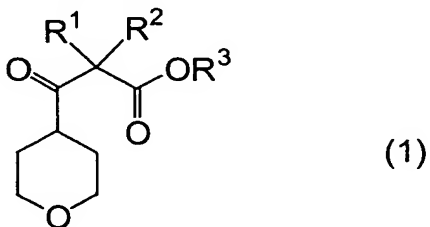
The process according to Claim 10, wherein the acid is hydrochloric acid or sulfuric acid.

[Claim 12]

The process according to Claim 10, wherein the  
15 decarboxylation is carried out at a temperature of 90 to 140°C.

[Claim 13]

An alkyl 3-(4-tetrahydropyranyl)-3-oxopropanoate compound represented by the formula (1):

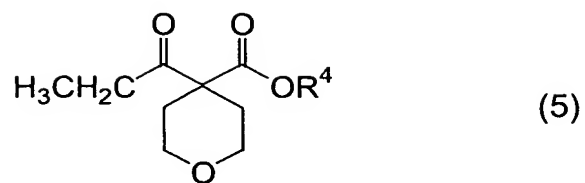


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wherein  $R^1$  and  $R^2$  may be the same or different from each other, and represent a group which does not participate in the reaction, and  $R^3$  represents a hydrocarbon group.

25 [Claim 14]

A 4-propionyl-4-alkoxytetrahydropyran represented by the formula (5):



$R^4$  has the same meaning as defined above.

[Claim 15]

The 4-propionyl-4-alkoxytetrahydropyran according to  
5 Claim 14, wherein  $R^4$  is a methyl group.